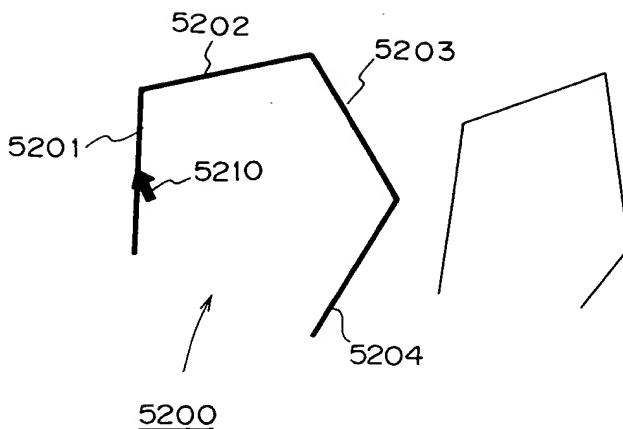


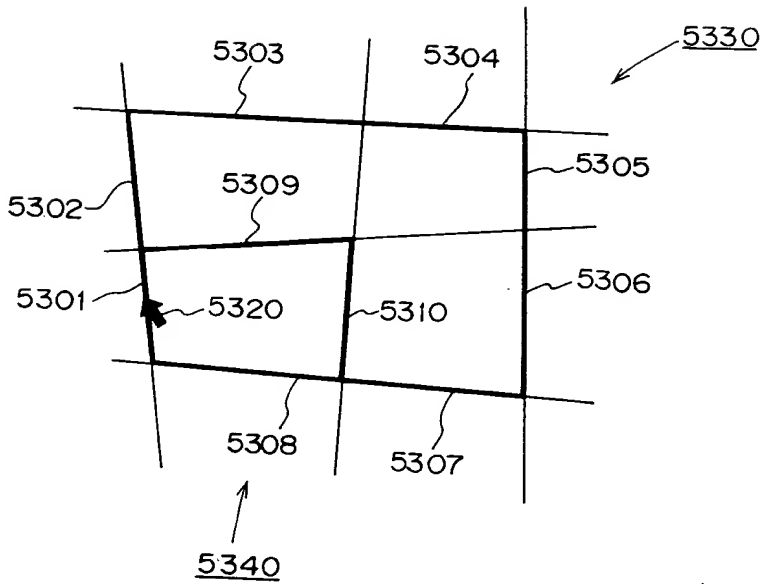
PRIOR ART

FIG. 1



PRIOR ART

FIG. 2



PRIOR ART

FIG. 3

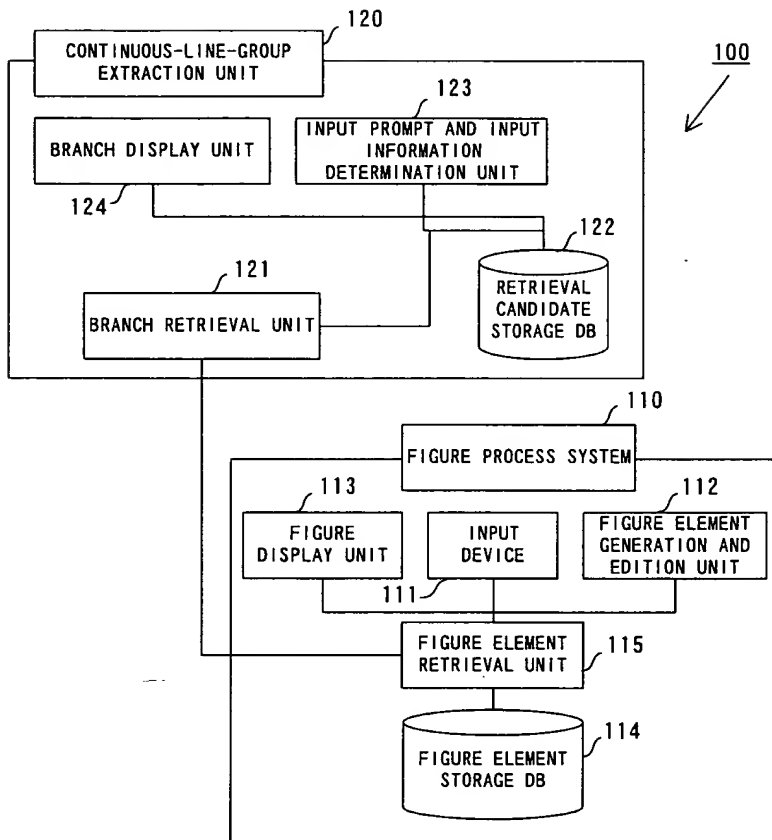


FIG. 4

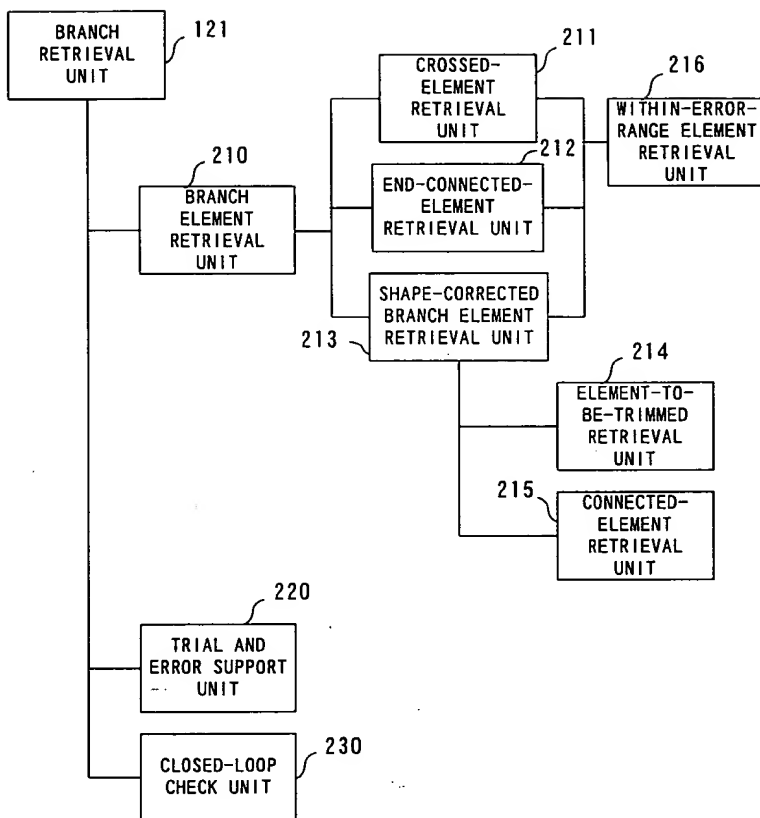


FIG. 5



FIG. 6


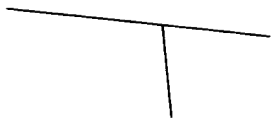


FIGURE ELEMENTS ARE
CONNECTED AT THE ENDS
IN THE CASE WHERE
INTERSECTION IS AT THE
ENDS OF THE RESPECTIVE
ELEMENTS, UNDER THE
END-CONNECTED STATE AS
SHOWN IN FIG. 8

FIG. 7



(a)



(b)

FIGURE ELEMENTS WITH
AN INTERSECTION

FIG. 8

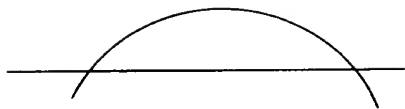


FIGURE ELEMENTS WITH
TWO INTERSECTIONS

FIG. 9


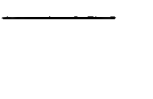
- (a)  FIGURE ELEMENTS WHICH ARE
ON THE SAME STRAIGHT LINE
(CURVED LINE) AND DO NOT
CROSS
- (b)  FIGURE ELEMENTS THAT INTERSECT
WHEN EXTENDED

FIG. 10



(a)



(b)

○ : SIZE OF A PREDETERMINED
ERROR, FOR EXAMPLE, ABOUT
 10^{-3}

FIG. 11

NUMBER OF REGISTERED ELEMENTS = N	
1	FIGURE ELEMENT ID
2	FIGURE ELEMENT ID
3	FIGURE ELEMENT ID
	.
	.
	.
N	FIGURE ELEMENT ID

TABLE 1

FIG. 12

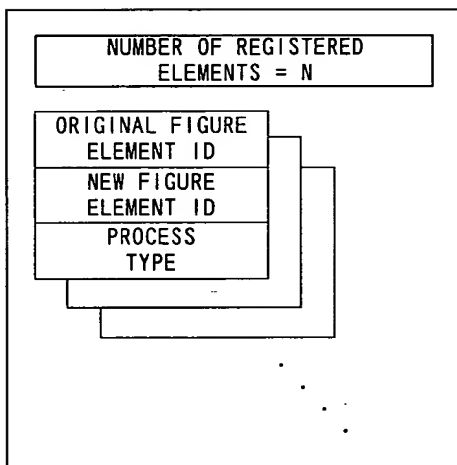


TABLE 2

FIG. 13

FIGURE ELEMENT ID

REFERENCE POINT COORDINATE VALUE

TABLE 3

FIG. 14

DIRECTION (POSITIVE/NEGATIVE)

TABLE 4

FIG. 15

NUMBER OF CROSSED ELEMENTS = N	
1	CROSSED FIGURE ELEMENT ID
2	CROSSED FIGURE ELEMENT ID
3	CROSSED FIGURE ELEMENT ID
	.
	.
	.
N	CROSSED FIGURE ELEMENT ID

TABLE 5

FIG. 16

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100

CROSSED FIGURE ELEMENT ID	
CROSSED COORDI- NATE VALUE	
DISTANCE FROM REFERENCE POINT	

TABLE 6

FIG. 17

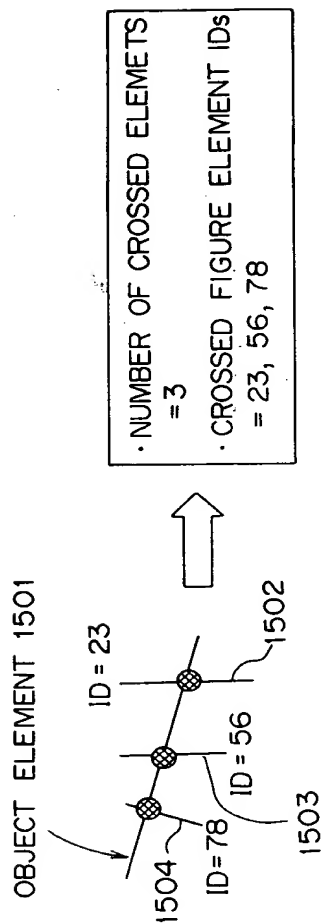


FIG. 18

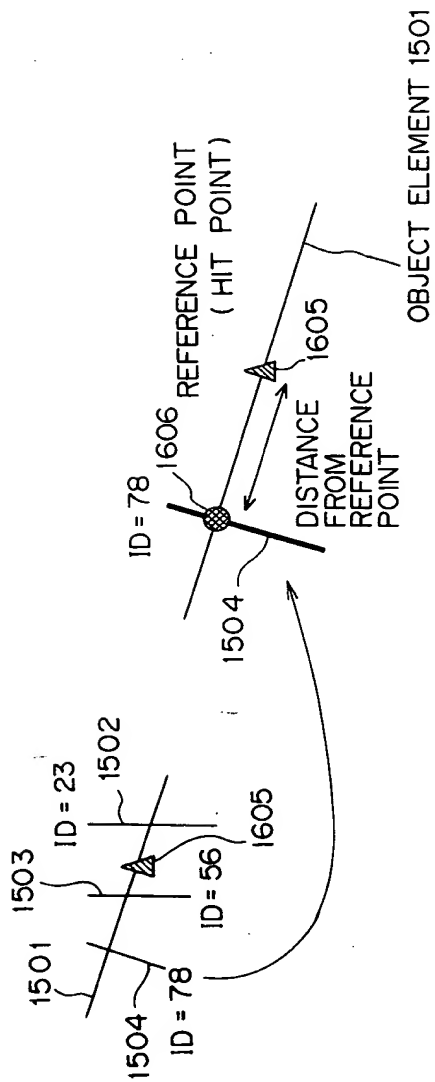
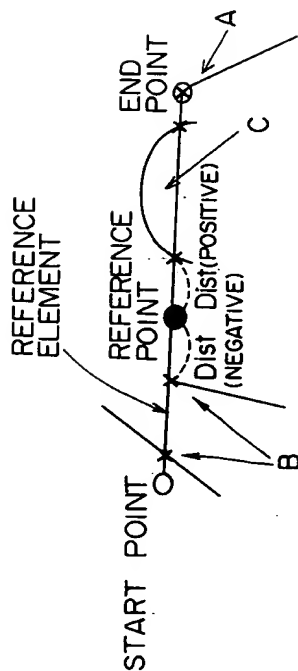


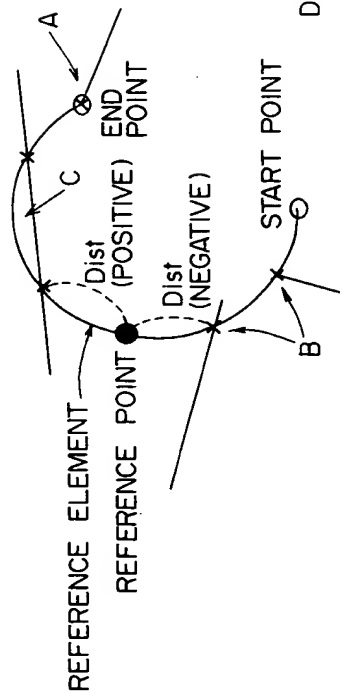
FIG. 19



A : END-CONNECTED STATE
 B : CROSSED STATE
 C : ROOT STATE

Dist : DISTANCE BETWEEN REFERENCE
 POINT AND BRANCH POINT
 (INTERSECTION) : DIRECTION FROM
 REFERENCE POINT TO START SIDE
 IS NEGATIVE DIRECTION AND
 DIRECTION FROM REFERENCE
 POINT TO END SIDE IS POSITIVE
 DIRECTION

FIG. 20



A: END-CONNECTED STATE
B: CROSSED STATE
C: ROOT STATE

Dist: RELATIVE ANGLE FROM REFERENCE POINT
TO BRANCH POINT (INTERSECTION);
ANGLE FROM REFERENCE POINT TO START
POINT SIDE (CLOCKWISE) IS NEGATIVE,
AND ANGLE FROM REFERENCE POINT TO
END POINT SIDE (COUNTERCLOCKWISE) IS
POSITIVE

FIG. 21

GENERATION	
NUMBER OF BRANCHES = N	
1	BRANCH ID
2	BRANCH ID
3	BRANCH ID
.	
.	
.	
.	
N	BRANCH ID

TABLE 7

F I G. 2 2

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BRANCH ID			
NUMBER OF ARRANGEMENT FIGURE ELEMENTS			
HEAD FIGURE ELEMENT ID			
<table><tr><td>ORIGINAL FIGURE ELEMENT ID</td></tr><tr><td>INTERSECTION COORDINATE FIGURE</td></tr><tr><td>NEW FIGURE ELEMENT ID</td></tr></table>	ORIGINAL FIGURE ELEMENT ID	INTERSECTION COORDINATE FIGURE	NEW FIGURE ELEMENT ID
ORIGINAL FIGURE ELEMENT ID			
INTERSECTION COORDINATE FIGURE			
NEW FIGURE ELEMENT ID			

TABLE 8

FIG. 23

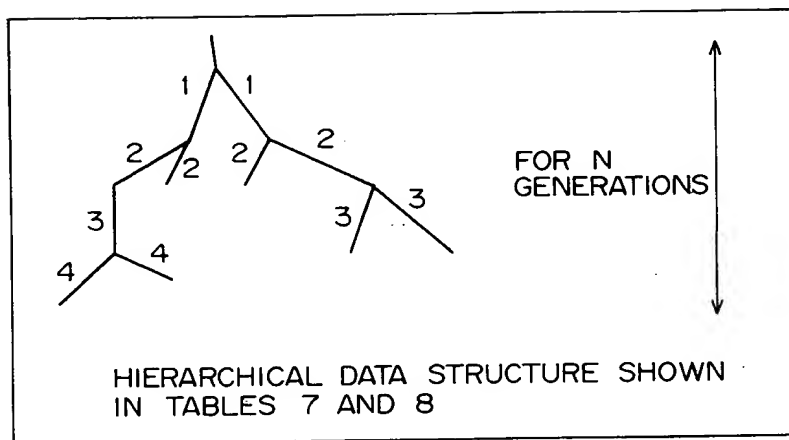


FIG. 24

HEAD END-CONNECTED FIGURE ELEMENT ID	
NUMBER OF END-CONNECTED BRANCHES = N	
1	BRANCH ID
2	BRANCH ID
3	BRANCH ID
.	
.	
.	
N	BRANCH ID

TABLE 9

FIG. 25

BRANCH ID			
NUMBER OF ARRANGEMENT FIGURE ELEMENTS WHICH ARE CONNECTED WITH BRANCHES AT END			
<table> <tr> <td>END-CONNECTED FIGURE ELEMENT ID</td></tr> <tr> <td>END-CONNECTED COORDINATE FIGURE</td></tr> <tr> <td>RETRIEVAL DIRECTION</td></tr> </table>	END-CONNECTED FIGURE ELEMENT ID	END-CONNECTED COORDINATE FIGURE	RETRIEVAL DIRECTION
END-CONNECTED FIGURE ELEMENT ID			
END-CONNECTED COORDINATE FIGURE			
RETRIEVAL DIRECTION			

TABLE 10

FIG. 26

REFERENCE ELEMENT			
NUMBER OF CANDIDATES FOR FIGURE ELEMENTS			
<table border="1"> <tr> <td>FIGURE ELEMENT ID</td> </tr> <tr> <td>PROCESS TYPE</td> </tr> <tr> <td>NEW FIGURE ELEMENT ID</td> </tr> </table>	FIGURE ELEMENT ID	PROCESS TYPE	NEW FIGURE ELEMENT ID
FIGURE ELEMENT ID			
PROCESS TYPE			
NEW FIGURE ELEMENT ID			

TABLE 11

F I G. 27

NUMBER OF PROCESS TYPES

PROCESS TYPES

NUMBER OF NOT-RETRIEVED FIGURE
ELEMENTS

ORIGINAL FIGURE
ELEMENT ID

NEW FIGURE ELEMENT
ID

TABLE 12

FIG. 28

NUMBER OF SPECIFIED TYPES = N	
	SPECIFIED RETRIEVAL TYPE
	SPECIFIED RETRIEVAL TYPE
	.
	.
	.
	SPECIFIED RETRIEVAL TYPE

TABLE 13

FIG. 29

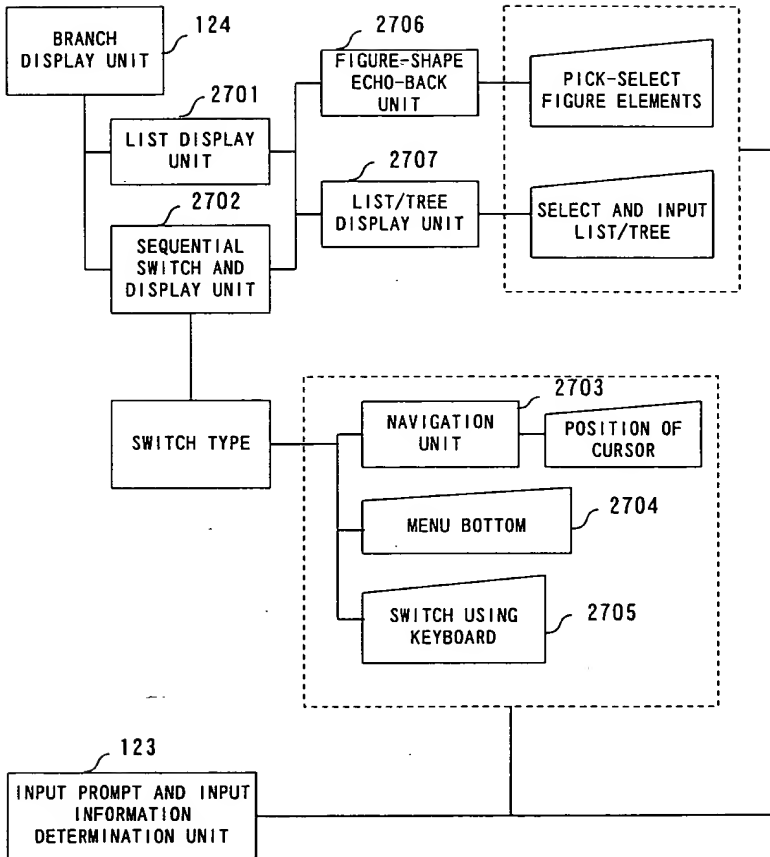


FIG. 30

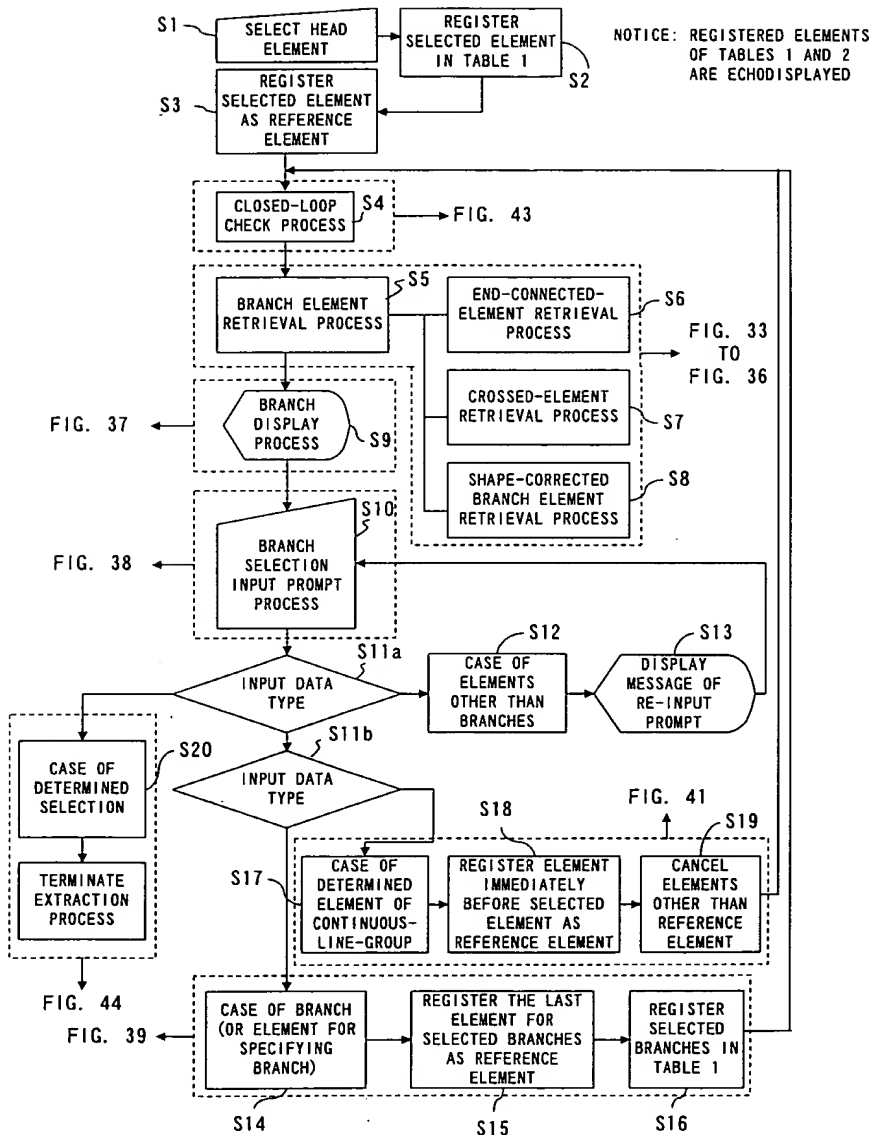


FIG. 31

SELECT HEAD ELEMENT OF
CONTINUOUS-LINE-GROUP S1

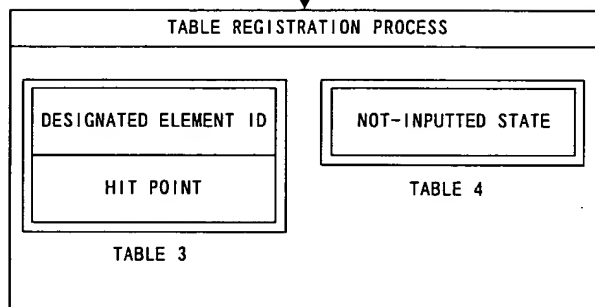


FIG. 32

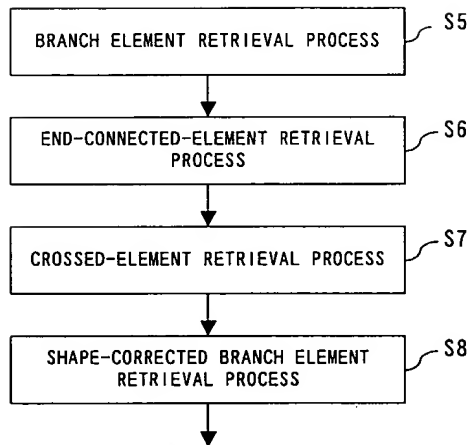


FIG. 33

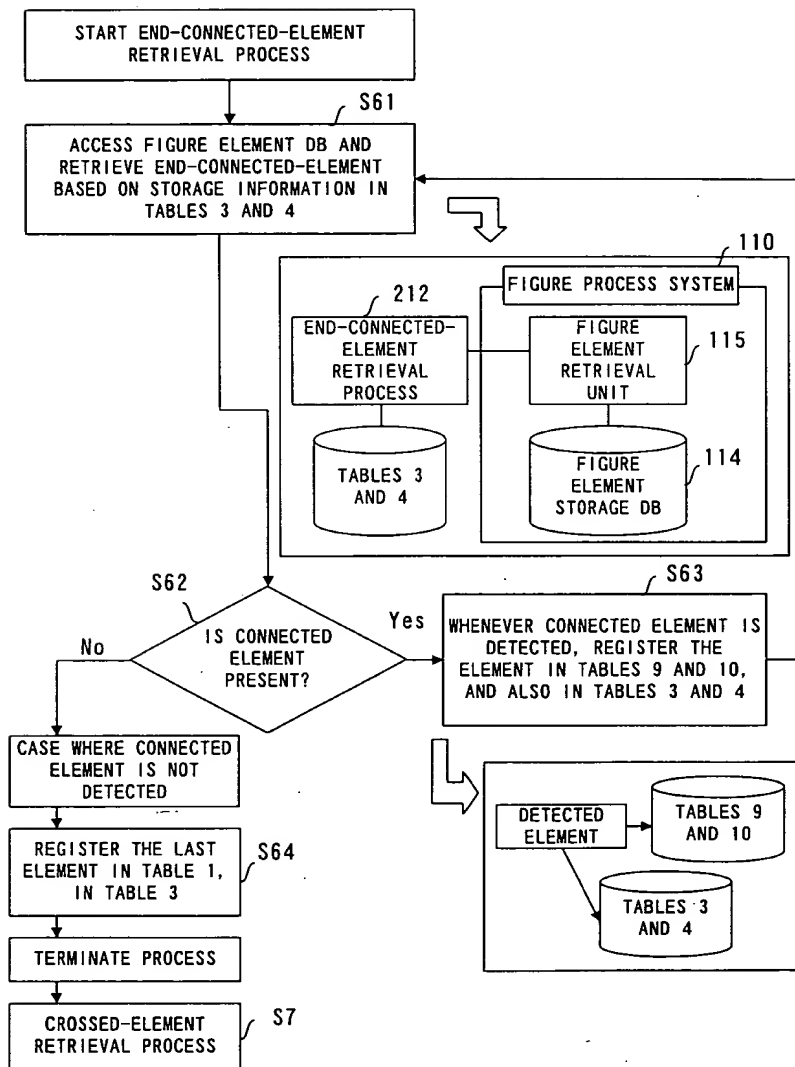


FIG. 34

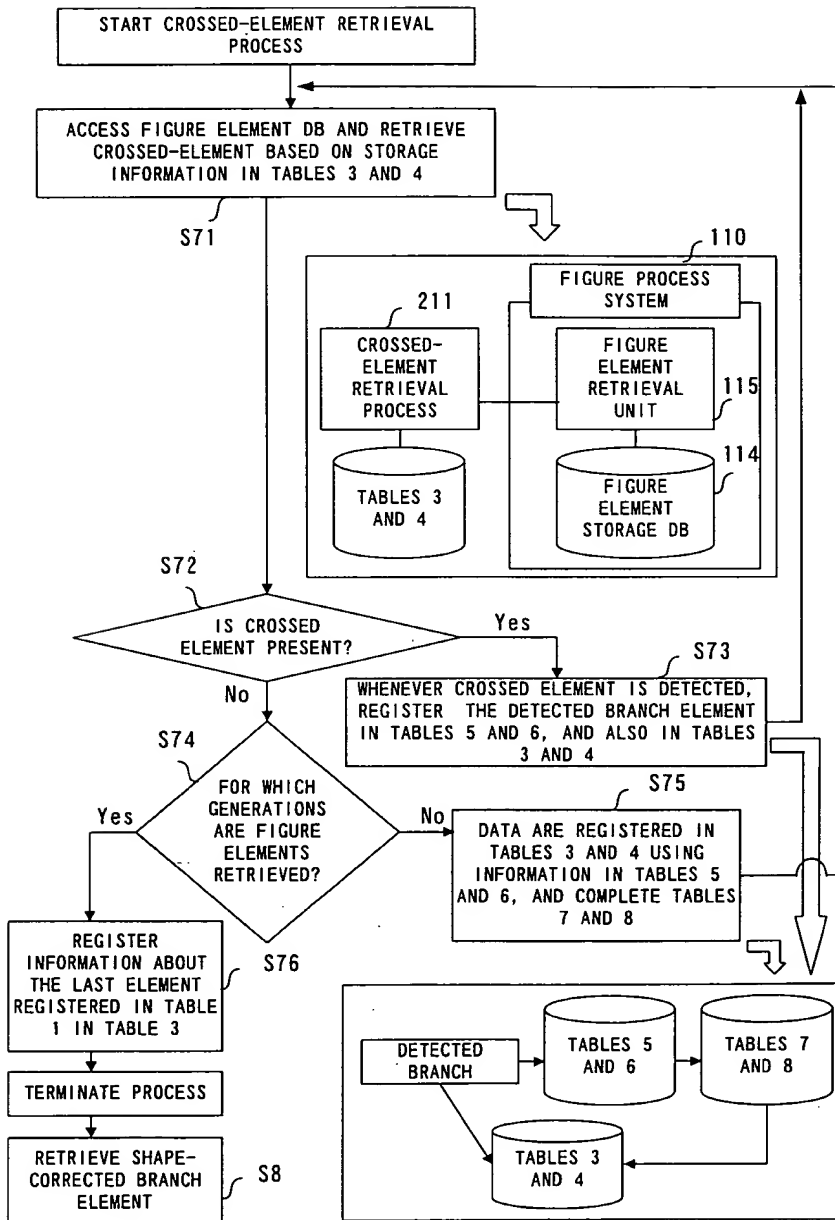


FIG. 35

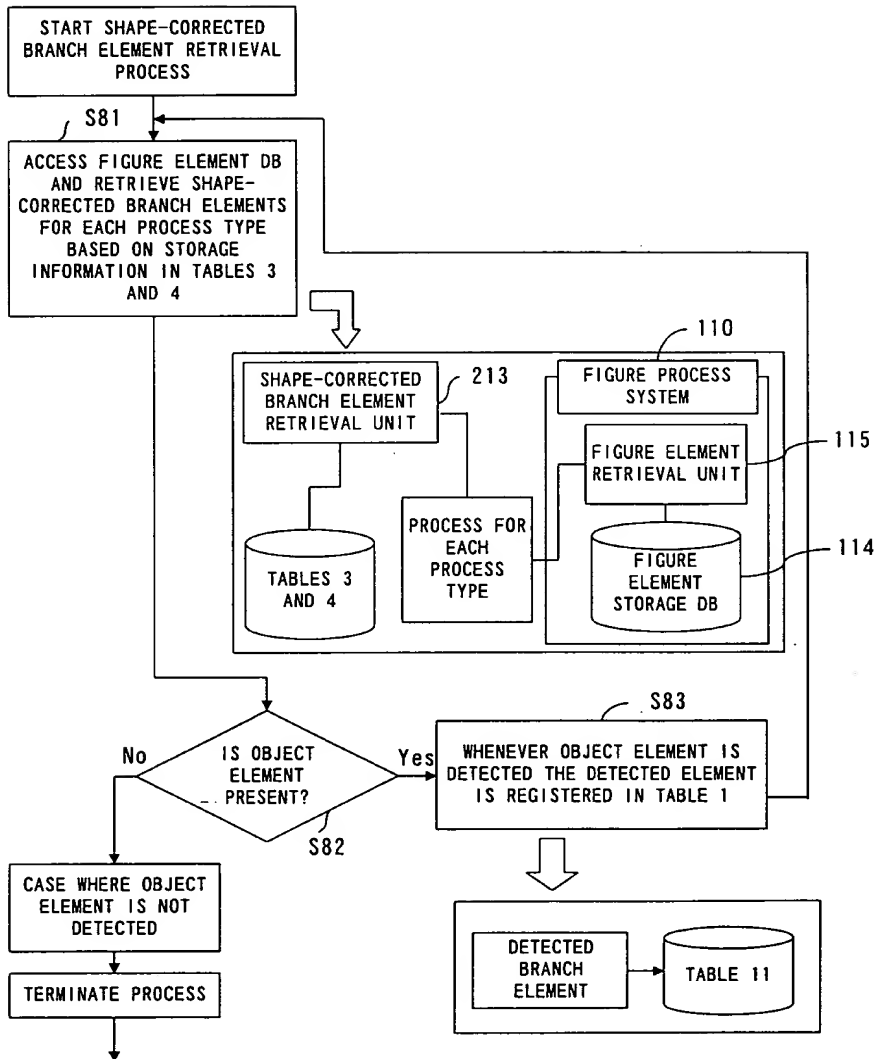


FIG. 36

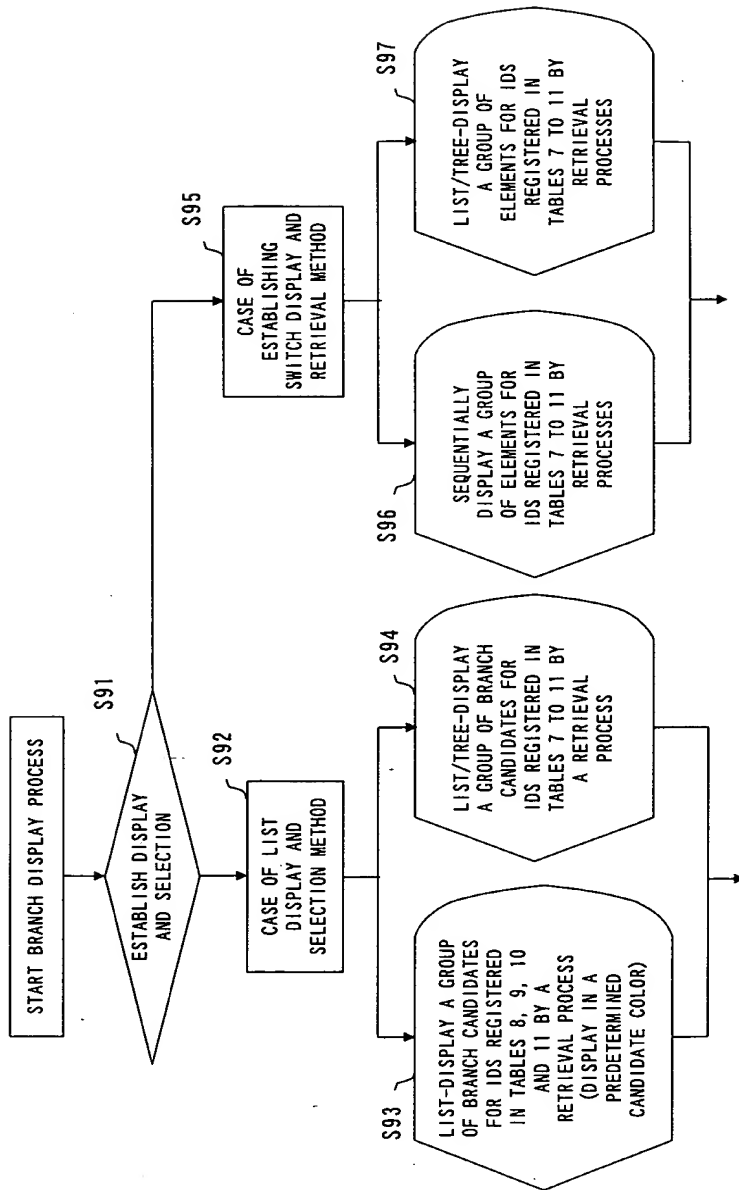
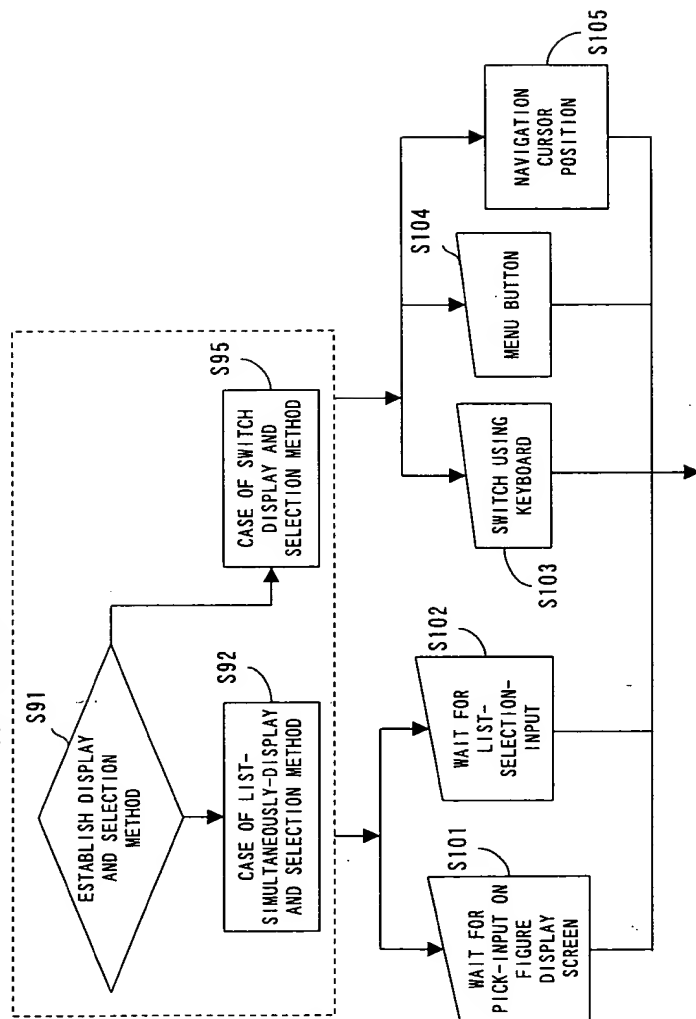


FIG. 37

PROCESS WILL BE IN A STATE OF WAITING FOR:

- (1) PICK-INPUT ON FIGURE DISPLAY SCREEN (SELECTING A FIGURE ELEMENT) ;
- (2) LIST-SELECTION-INPUT (BRANCH ID) ;
- (3) KEYBOARD-INPUT



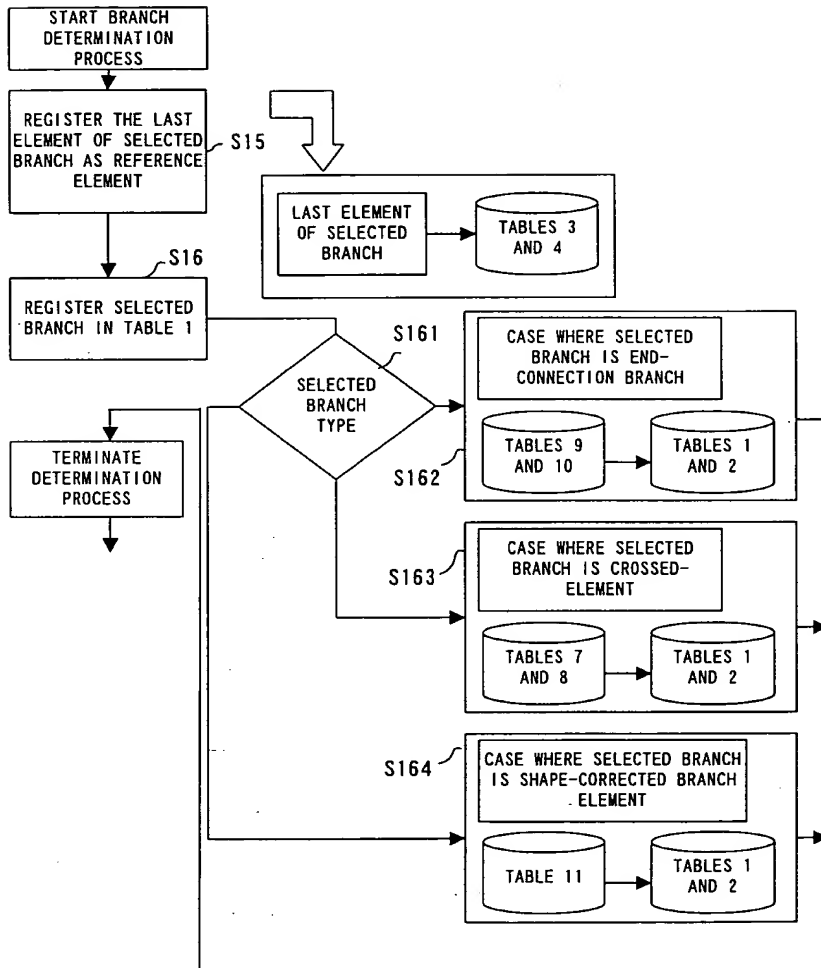


FIG. 39

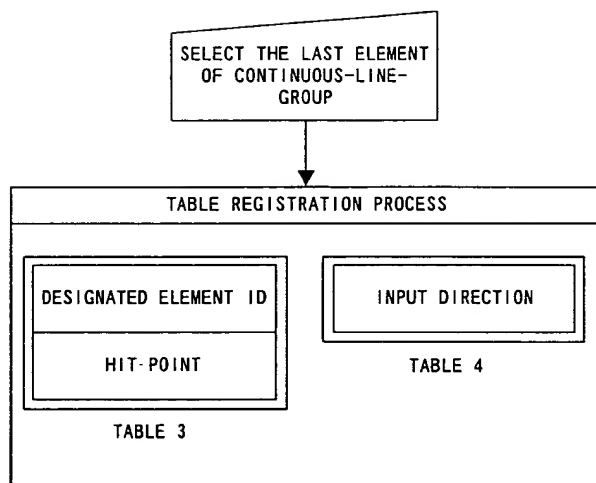


FIG. 40

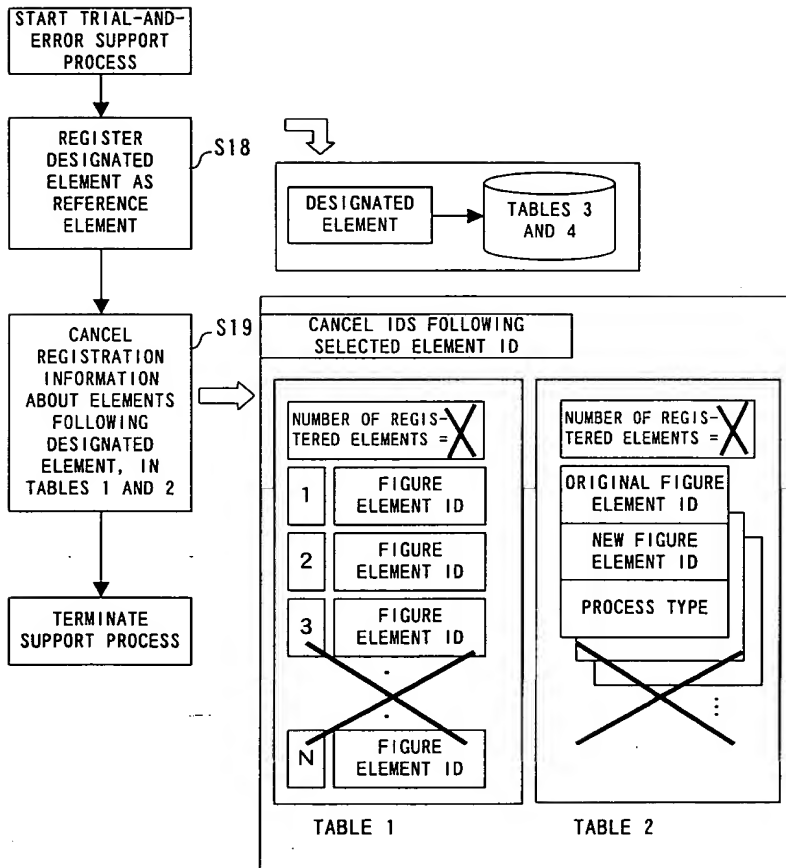


FIG. 41

SELECT ELEMENT
IMMEDIATELY BEFORE
CONTINUOUS-LINE-GROUP

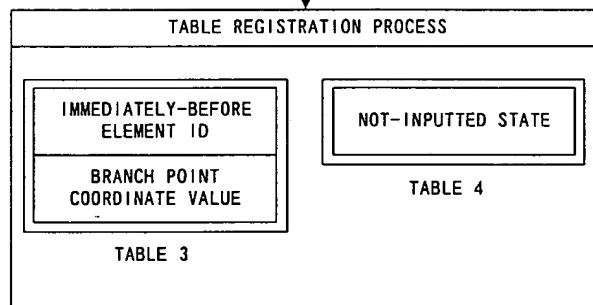


FIG. 42

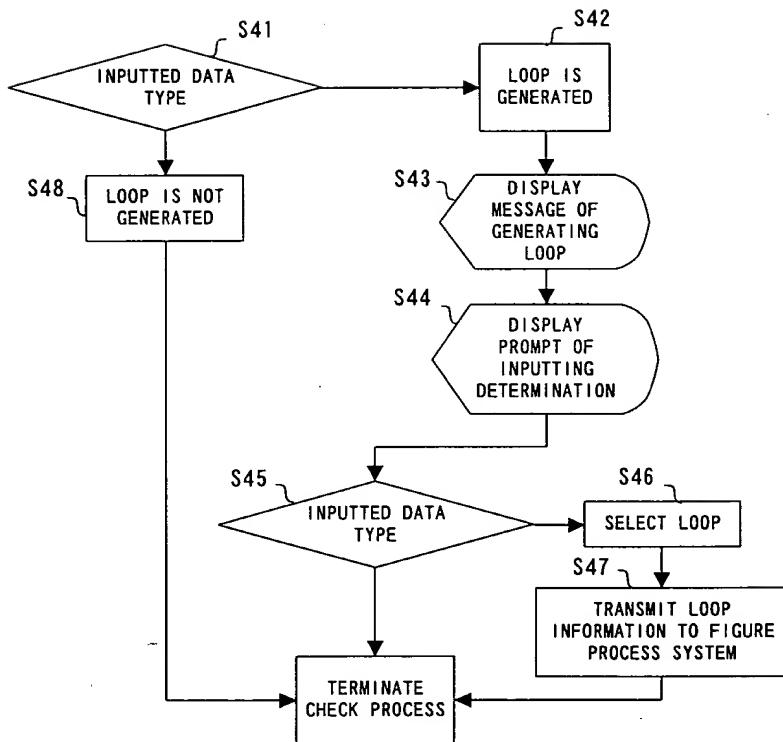


FIG. 43

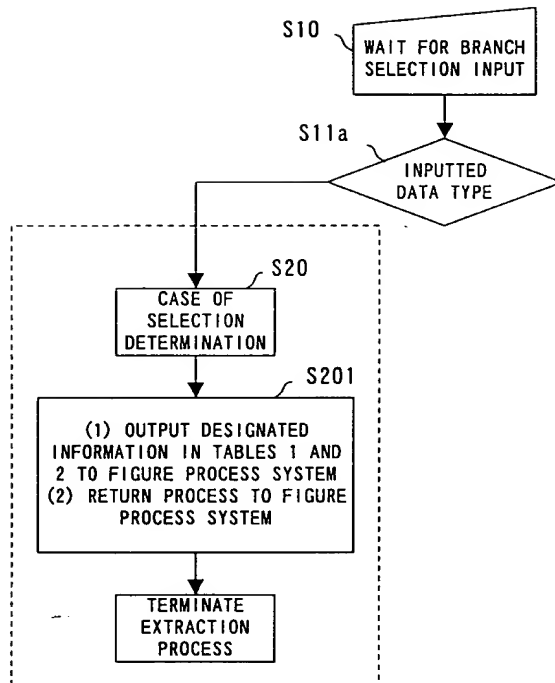


FIG. 44

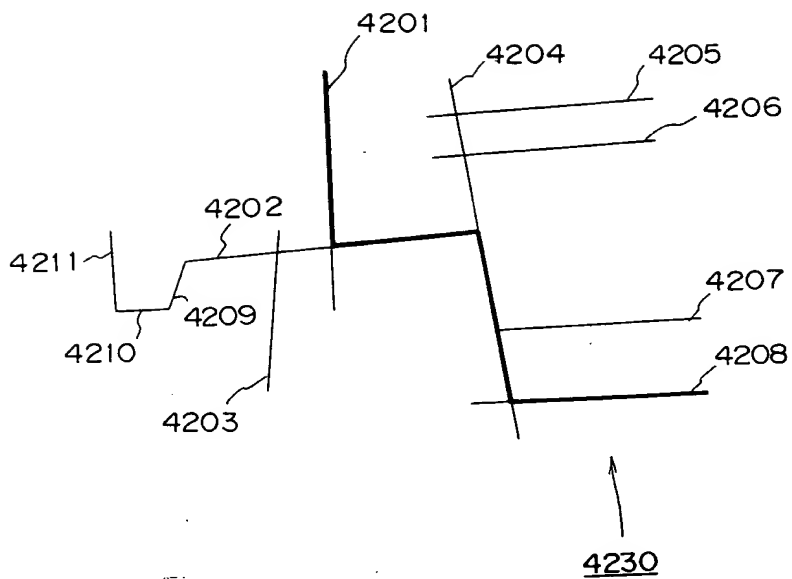


FIG. 45

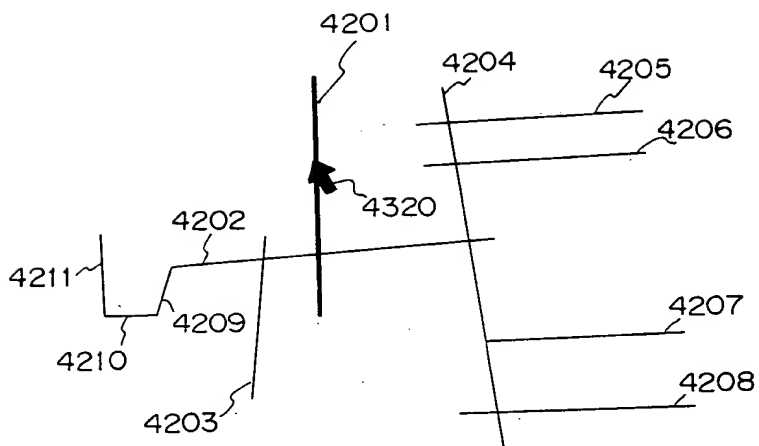


FIG. 46

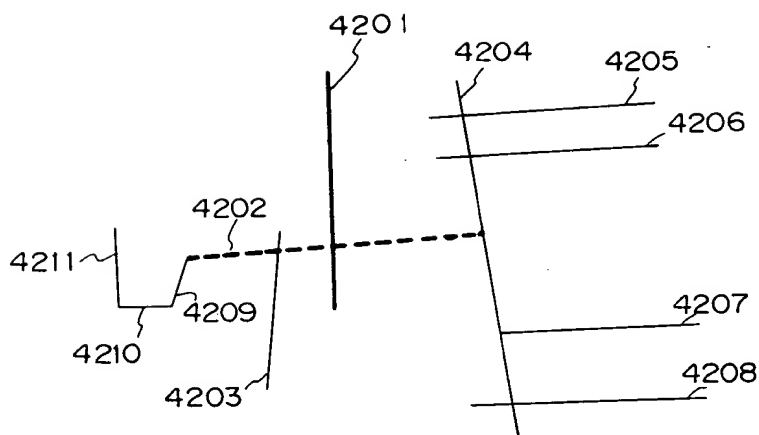


FIG. 47

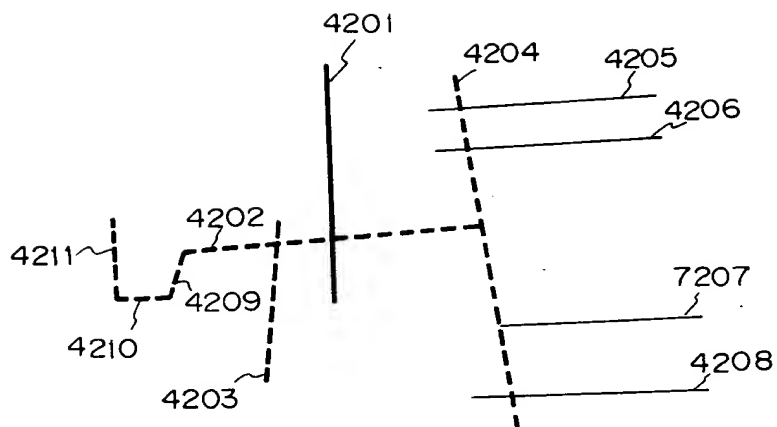


FIG. 48

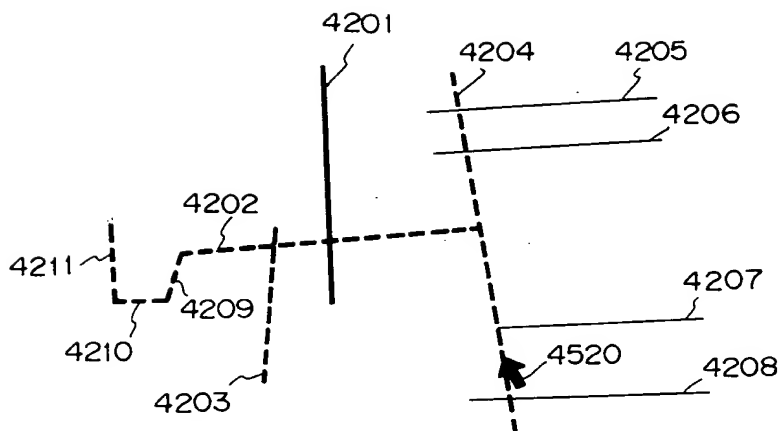


FIG. 49

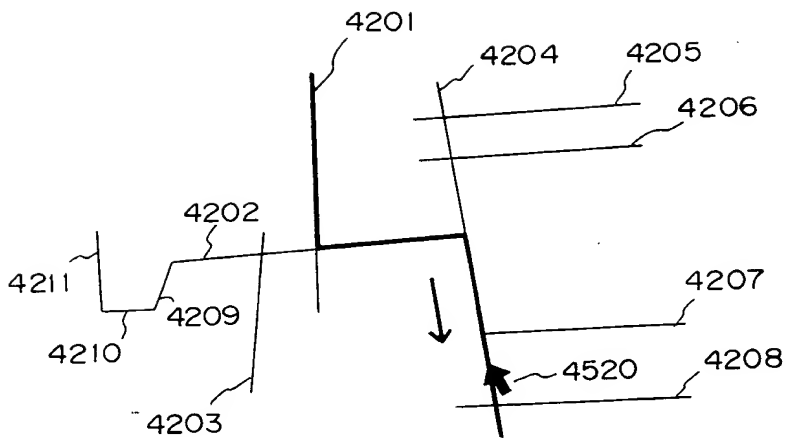


FIG. 50

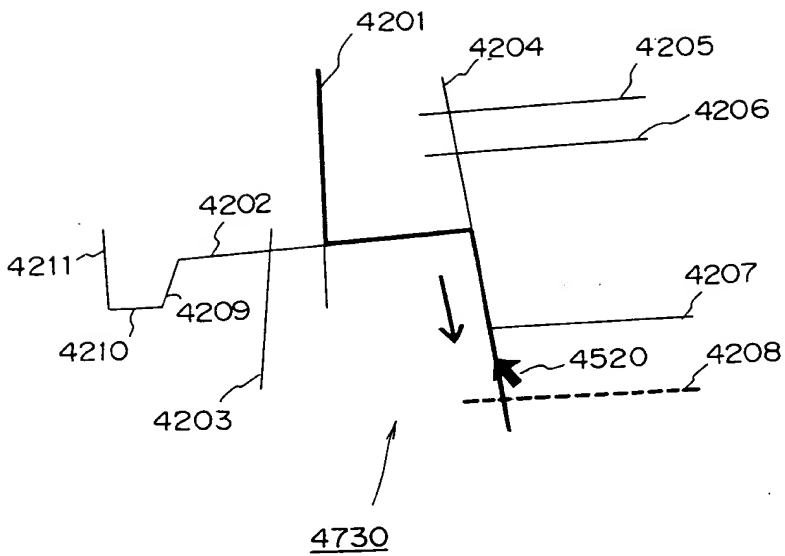


FIG. 51

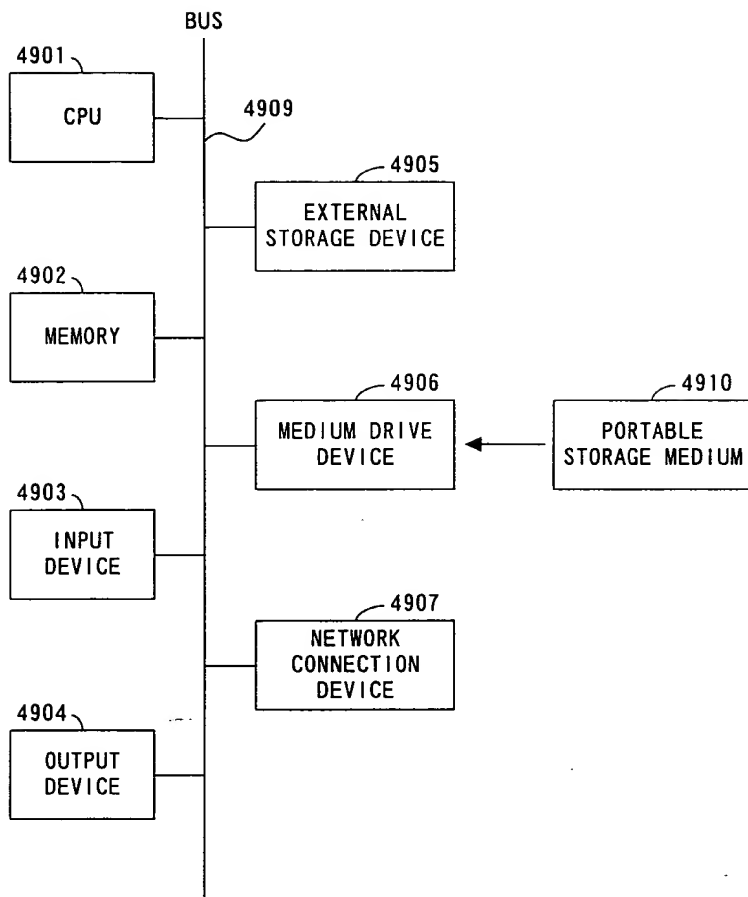


FIG. 52

FIG. 53 is a block diagram of a system for providing program data to a computer. The system includes a program data provider 500, a computer 500, and a portable-type storage medium 5010. The program data provider 500 is connected to the computer 500 via a communication line. The computer 500 includes a memory such as RAM/hard disk 5001, a processor, and a load. The portable-type storage medium 5010 is connected to the computer 500 via a communication line.

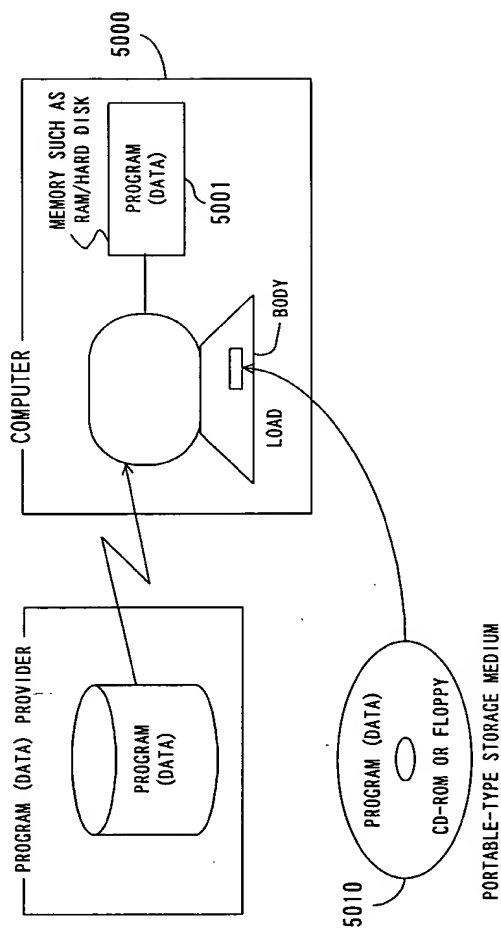


FIG. 53